

37. 42. The apparatus of Claim <sup>36</sup>41, further comprising a plurality of perforated baffles dividing the flow container into a series of sections, and a plurality of said mounts in each section for mounting multiple tissue pieces within each section.

5 REMARKS

Claims 1-31 were pending prior to the present Office Action. With this amendment, claims 26 and 27 are canceled, and claims 32-42 are added, therefore claims 1-25 and 28-42 are presently pending.

10 The claims stand rejected for obviousness-type double patenting in view of claims 1-22 of parent Patent No. 5,931,969. Applicants note, however, that the present application is a divisional of the parent application prompted by a Restriction Requirement under 35 USC §121, a portion of which is attached. As a result, and in most cases, the present claims cannot be rejected as being obvious over the parent claims because of the formal Office Restriction. See MPEP §804.01, entitled Prohibition of Double Patenting Rejections Under 35 USC §121. The idea is that if the Office decides the claims are  
15 distinct inventions, then it cannot later call them obvious variants. The courts have nevertheless recognized that where the divided claims are not consonant with the parent claims then a double patenting rejection may again be proper. Symbol Technologies Inc. v. Opticon Inc., 935 F.2d 1569, 19 U.S.P.Q.2d 1241, 1249 (Fed. Cir. 1991). However, the standard is whether the "line of demarcation" between the inventions that prompted the restriction requirement has been crossed. In the present case,  
20 as seen on the attached portion of the Restriction Requirement at issue, the "line of demarcation" is between apparatus and method claims. The present application includes those same apparatus claims, and additional apparatus claims. There is nothing to suggest to the Applicant that the added apparatus claims are any closer to the method claims such that the previous Restriction Requirement would not have divided them as well. Therefore, the "line of demarcation" has not been crossed, a double  
25 patenting rejection cannot be maintained, and the rejection is therefore obviated.

Claim 1 stands rejected under 35 USC §102(e) in view of Dunkelman, et al.. In response, Applicants have amended claim 1 to include a means for heating the fluid to a temperature greater than

body temperature ( $>37^{\circ}\text{C}$ ). Such heating is described in the present application as being particularly effective in inhibiting calcification in tissue, and specific support can be found at page 9, last full paragraph. Dunkelman, et al. disclose various flow chambers for treating vascular grafts, and in only one passage (noted by the Examiner) mentions that the treatment fluid may be kept at body  
5 temperature. Therefore, there is no suggestion to provide a heating means that is capable of heating the fluid to greater temperatures. The processes of Dunkelman, et al. include sterilizing, seeding, culturing, storing, shipping, and testing vascular grafts. None of these intrinsically requires higher temperatures, and if higher temperatures were a possibility then the Dunkelman, et al. patent would have mentioned it. Because of this silence, Applicants assert that there is no motivation for one of skill  
10 in the art to modify the specific system disclosed in the Dunkelman, et al. patent. Therefore, claims 1-9 are believed allowable thereover.

Claim 11 stands rejected under 35 USC §102(b) in view of Freedman. In response, Applicants have amended claim 10 to include the limitations of claim 11 as above, as well as the element of bioprosthetic tissue. The resulting combination of bioprosthetic tissue and shaking and heating  
15 apparatus is not shown or suggested by Freedman who teaches a shaker-incubator apparatus for "chemicals or the like." (Col. 3, lines 15-16). Applicants submit that the treatment of bioprosthetic tissue to mitigate calcification by placing it in a fluid in a container, and shaking and heating the fluid is heretofore unknown, and that the combination of claim 10 is therefore novel. Because Freedman pertains to age-old chemical shaker-incubators, his disclosure would not suggest to one of skill in the  
20 art to make the claimed combination. If it did, then one would presume that such a combination would have appeared in the literature, given that the need to treat bioprosthetic tissue to inhibit calcification has existed for at least thirty years. Indeed, the fact that this solution answers a long-felt need argues against it being obvious. Furthermore, the data provided in Figures 12 and 13 of the application indicate a surprising improvement in lowering calcium uptake in tissue treated using the claimed  
25 heating/shaking apparatuses versus the controls. Therefore, claims 10-12 are believed allowable.

Claim 13 stands rejected under 35 USC §102(b) in view of Fisher and under 35 USC §102(e) in view of Dunkelman, et al.. In response, Applicants have rewritten claim 13 to include the

limitations of claim 10 as above, as well as the element of bioprosthetic tissue. The resulting combination of bioprosthetic tissue and stirring and heating apparatus is not shown or suggested by either Fisher or Dunkelman, et al.. Indeed, Dunkelman, et al. disclose various flow chambers for treating vascular grafts, and do not suggest a way to accomplish the same result using a stirrer for causing fluid movement. Fisher does disclose a magnetic stirrer in a fluid container over a hotplate. However, Applicants submit that the treatment of bioprosthetic tissue to inhibit calcification by placing it in a fluid in a container, and stirring and heating the fluid is heretofore unknown, and that the combination of claim 13 is therefore novel. Because Fisher pertains to well-known laboratory stirrer/heaters, the disclosure would not suggest to one of skill in the art to make the claimed combination. Again, if it did, then such a combination would have been in the prior art. Therefore, claims 13-24 are believed allowable.

Claim 25 stands rejected under 35 USC §102(e) in view of Dunkelman, et al. and Goffe. In response, Applicants have amended claim 25 to specify that the bioprosthetic tissue is a sheet, and that the tissue mount within the flow container mounts the tissue sheet in a planar configuration substantially parallel to the direction of flow of the treatment fluid. This corresponds to original claims 10, 25, 26 and 27. This arrangement is neither shown nor suggested in the two cited references. As mentioned, Dunkelman, et al. disclose various flow chambers for treating *tubular* vascular grafts, and in all cases provide varying radial pressure differentials across the tubular graft walls to simulate physiological conditions. Motivation to modify the system(s) to accommodate sheet material, with the sheet being held parallel to the flow of treatment fluid, is therefore absent. Goffe, on the other hand, discloses a cell culturing incubator in which the treatment fluid flows through a tubular cell culture receptacle 28, for example a hollow fiber device. Hot air circulates to heat the receptacle. Cells and supernatant (used fluid media) are the products of the use of the system. There is thus no need for a tissue mount, let alone one that holds sheet tissue parallel to a treatment fluid flow. Consequently, claims 25 and 28-31 are believed allowable over the cited art.

Claims 2-3, 5-6, 9, 17-19, 22, and 28-29 were not included in any of the prior art rejections, and thus are believed allowable. The undersigned respectfully requests that the Examiner affirmatively

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state this allowable claim status in future actions to assist in the preparation of a response, and remove any potential misdirection from inadvertent typographical errors. In any event, these presumptively allowable claims have been rewritten into independent form as new claims 32-42 and should be allowed.

In summary, claims 1-25 and 28-42 are believed allowable over the prior art of record. If there is any further hindrance to allowance, the Examiner is encouraged to contact the undersigned by telephone.

Date:

8/2/00

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